AMENDMENT TO THE CLAIMS

Claims 1 – 6 **(Cancelled)**.

Please add the following new claims:

7. **(New)** A method for operating an olefin polymerization loop reactor system comprising:

a) introducing an olefin, a polymerization catalyst, and a diluent carrier liquid into a loop reactor, having an internal circulation pump;

b) operating said circulating pump to circulate said diluent liquid and said olefin through said loop reactor while polymerizing said olefin monomer in the presence of said catalyst system to produce a slurry of polymer particles in said carrier liquid;

c) diverting the flow of said slurry through said loop reactor into a settling leg connected to the loop reactor and having a rotating take-off valve which is operable to rotate from an initial 0^{o} reference closed position to an intermediate open position and a final closed position in order to sequentially discharge settled polymer slurry from said settling leg to withdraw said polymer slurry from said reactor system;

d) operating said rotating valve through a cycle of operation to rotate said valve from the initial closed position at a 0^{o} reference to the intermediate position to open said valve and discharge polymer particles from said settling leg followed by continuing the rotation of said valve to the final closed position to close said valve followed by another cycle of operation in which the direction of rotation of said valve is reversed to rotate said valve from said final closed position to said intermediate open position to said initial closed position;

e) determining the time of rotation of said valve from the initial 0^{o} reference closed position to the final reference closed position;

f) comparing said valve rotation time with a set point representative of a desired rotation time; and

g) adjusting the speed of rotation of said take-off valve in response to the comparison of said valve rotation time with said set point rotation time in order to increase the speed of rotation when the valve rotation time is less than the set point rotation time and decrease the speed of rotation when said valve rotation time is faster than said set point rotation time.

8. **(New)** The method of claim 7 wherein said rotating take-off valve is a 180° rotating take-off valve which is operable to rotate from the initial 0° reference closed position to a 90° intermediate open position and a 180° final closed position and said valve cycle of operation to rotate said valve from the closed position at 0° reference to the 90° reference position to open said valve and discharge polymer particles from said settling leg followed by continuing the rotation of said valve to the 180° final position to close said valve is followed by the next cycle of operation in which the direction of said valve is reversed to rotate said valve from 180° to 90° in which said valve is open, to 0°.

9. **(New)** An olefin polymerization loop reactor system comprising:

a) a loop reactor;

b) at least one inlet for introducing an olefin monomer and a diluent carrier liquid into said loop reactor;

c) a catalyst inlet for supplying a polymerization catalyst system to said loop reactor;

d) a pump in said loop reactor effective for circulating said diluent liquid and olefin monomer through said loop reactor to provide for the polymerization of said olefin monomer in the presence of said catalyst system to produce a slurry of polymer fluff particles in said diluent carrier liquid;

e) at least one settling leg connected to the loop reactor for receiving slurry from said reactor and sequentially discharging the settled polymer slurry from said at least one settling leg to withdraw polymer slurry from said reactor system;

f) a rotating take-off valve in said settling leg which is operable to rotate from an initial 0° reference closed position to an intermediate open position and a final closed position in order to sequentially discharge the settled polymer slurry from said settling leg to withdraw said polymer slurry from said reactor system;

g) a double acting activator for said take-off valve to rotate said valve from the initial closed position at a 0° reference to the intermediate position to open said valve and discharge polymer particles from said settling leg followed by continuing the rotation of said valve to the final reference position to close said valve followed by another cycle of operation in which the direction of rotation of said valve is reversed to rotate said

valve from the final position to the intermediate position at which said valve is open to the initial reference position 0° at which said valve is closed;

h) a pneumatic controller for said activator which functions to alternately direct pneumatic fluid to one side of said activator while opening the other side of said activator to exhaust;

i) a supply and exhaust system for said pneumatic operator comprising at least one inlet conduit connected to a source of pneumatic fluid and another conduit connected to an exhaust zone for pneumatic fluid; and

j) at least two of said conduits having automatic control valves for opening and closing said conduits.

10. **(New)** The system of claim 8 wherein said automatic control valves are pneumatic v-ball valves.

11. **(New)** The reactor system of claim 9 wherein said valve is a 180° rotating valve which is operable to rotate from the 0° reference closed position to a 90° intermediate open position and a 180° final closed position and said double acting activator rotates said valve from the closed position at a 0° reference to the intermediate 90° open position followed by continuing the rotation of said valve to the 180° position to close said valve through another cycle of operation in which the direction of rotation of said valve is reversed to rotate said valve from 180° to 90° at which said valve is open to 0° at which said valve is closed.

12. **(New)** The reactor system of claim 9 further comprising sensors associated with said valve to said valve being at the 0 reference closed position and the final closed position for generating signals representative of said valve reaching said initial closed position and said final closed position and a rotation controller representative of information generated from said sensor signals to control said pneumatic controller.